International Multidisciplinary Scientific GeoConference Surveying Geology and Mining Ecology Management, SGEM 2018 vol.18 N1.2, pages 341-347

Hydrogeological conditions and lithological composition of natural bitumen-saturated deposits of the western slope of the south tatar arch and the eastern side of the melekess depression

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Abstract

© 2018, International Multidisciplinary Scientific Geoconference. All rights reserved. In order to increase the resource potential of the Volga-Ural oil and gas province, natural bitumen deposits have been commissioned in recent years. The pilot-industrial development of some near-surface bituminous deposits encountered numerous problems due to insufficient information on the hydrogeological conditions of the sites under study. In this paper, conditions of the groundwater deposits formation at natural bitumens deposits of the eastern side of the Melekess depression and the western slope of the South Tatar arch are considered. In these territories, the bitumen-bearing structural stage includes complexes of the Permian system: Cisuralian carbonate and terrigenous rocks, Guadalupian terrigenous-carbonate and carbonate-terrigenous rocks. The study of bitumen-bearing complexes of the Cisuralian series showed that they are characterized by a complex hydrogeological structure. The study of bitumen-bearing complexes of the Cisuralian series showed that they are characterized by a complex hydrogeological formation structure. This is due to the following factors: localization of deposits in the zone of active water exchange, proximity with Neogene erosion deposits and intensive interaction of hydrocarbons with groundwater. In the hydrochemical relation, the groundwater of natural bitumen deposits has a certain zonality, which depends on the geostructural position and the erosional dissection of the terrain. Important importance for the formation of the hydrochemical composition of waters is provided by the lithofacies conditions of the water-bearing rocks and the presence of bitumens.

http://dx.doi.org/10.5593/sgem2018/1.2/S02.043

Keywords

Bitumens, Deposits, Geological and hydrogeological conditions, Groundwater genesis, Hydrochemical zonality

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